

CLAIMS

1. A key-less system for actuating a lock responsive to a valid OPEN command, comprising:

a power source;

5 a first system portion coupled to the power source and receiving power therefrom while the system is in an active or inactive state, wherein the first system portion comprising:

a keypad having at least one key that when depressed provides an electronic signal representing an entered actuation code; and

10 a detector coupled to the keypad that intercepts at least a first keystroke of the at least one key and in response to the first keystroke turns the switch ON, thereby making the second system portion active; and

15 a second system portion coupled to the power source by a switch and receiving power therefrom and in an active state only when the switch is ON, wherein the second system portion comprising:

a memory with one or more valid actuation codes stored therein;

20 a processor coupled to the memory and the keypad, wherein the processor receives from the keypad, keystroke sequences representing an entered actuation code and compares them to valid actuation codes retrieved from the memory to detect a match; and

25 a transmitter coupled to the processor, wherein when the processor detects the match, the transmitter sends out an RF signal carrying the valid OPEN command recognizable by the lock.

2. The system of claim 1 further comprising an antenna coupled to the transmitter for transmitting the RF signal.

3. The system of claim 1 further comprising a housing for containing the system, adapted to be attached to a vehicle without connecting wires.

4. The system of claim 1 further comprising a timer operatively coupled to the switch that shuts the switch OFF after a predetermined interval.

5. The system of claim 1 wherein the processor is operatively coupled to the switch and when the processor fails to detect a match, it sends an instruction to the switch causing the switch to turn OFF.

6. The system of claim 1 wherein the transmitter is operatively coupled to the switch and after the transmitter has sent the RF signal, the system waits an additional period of time to detect command instructions received from the keypad before sending an instruction to the switch causing
5 the switch to turn OFF.

7. The system off claim 1 further comprising a further ON/OFF switch coupled between the first system portion and the power source to disconnect the first system portion from the power source when the system is intended to be inoperative.

8. The system of claim 1 wherein either or both of the memory and the processor are part of the first portion rather than the second portion.

9. The system of claim 1 further comprising a sleep mode flag for remembering whether or not a match had been obtained and storing such flag prior to turning the switch OFF.

10. The system of claim 1 wherein the transmitter is configured to transmit in response to the processor finding a match, an RF signal compatible with those used by a fob-type key-less entry system to which the lock is responsive.

11. A method for key-less entry using a keypad, a keystroke detector, a processor, a memory and a power switch coupled to at least a transmitter, for remotely actuating a lock responsive to an "OPEN" command, the method comprising:

5 detecting at least a first keystroke;

turning the power switch ON in response to detecting the at least first keystroke thereby powering-up at least the transmitter;

receiving multiple keystrokes from the keypad;

10 comparing the received keystrokes to one or more valid entry codes stored in the memory to identify a match; and

transmitting an RF signal containing the OPEN command to the lock if the match is identified.

12. The method of claim 11 further comprising, starting a time delay after receiving the at least first keystroke and when the time delay expires, turning the power switch OFF.

13. The method of claim 11 further comprising after turning the power switch ON, determining whether further valid keystrokes are being received and if not, turning the power switch OFF.

14. The method of claim 11 further comprising following the transmitting step, placing the system in a secure mode ready to receive command keystroke entries from the keypad.

15. The method of claim 11 wherein the transmitting step comprises transmitting an RF signal compatible with a signal generated by a fob-type key-less entry device to which the lock is responsive.

16. The method of claim 15 wherein the step of turning on the power comprises turning on the power to the memory and the processor as well as the transmitter.

17. The method of claim 11 wherein the comparing step comprises first retrieving the valid entry codes from the memory and then comparing them to the received keystrokes.

18. A key-less entry system for generating a valid command recognizable by a receiving apparatus, comprising:

a power source;

a switch coupled to the power source;

5 a first system portion coupled to the power source and receiving power therefrom while the system is in an active or inactive state, wherein the first system portion comprises:

10 a keypad having at least one key that when depressed provides an electronic signal representing an entered actuation code; and

a detector coupled to the keypad that intercepts at least a first keystroke of the at least one key and in response to the first keystroke turns the switch ON, thereby making the second system portion active;

15 a second system portion coupled to the switch and receiving power therefrom and in an active state only when the switch is ON, wherein the second portion comprises a transmitter

wherein either the first or second portion comprises:

20 a memory with one or more valid actuation codes stored therein;

a processor coupled to the memory, the keypad and the transmitter, wherein the processor receives from the keypad, keystroke sequences representing an entered actuation code and compares them to valid actuation codes retrieved from the memory to detect a match; and

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wherein when the processor detects the match, the transmitter sends out an RF signal carrying the valid command recognizable by the receiving apparatus.

19. The system of claim 18 further comprising a timer for turning the switch OFF a predetermined interval after keystroke sequences from the keypad have stopped.

20. The system of claim 18 wherein, after the transmitter sends out an RF signal, at least one further keystroke command sequence is received from the keypad and the transmitter sends out a further RF signal corresponding to the command sequence without comparing the command sequence with a stored code.